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HUMAN RESOURCES

INSTRUCTIONAL SUPPORT SYSTEM (ISS): AN OVERVIEW FOR INSTRUCTIONAL PERSONNEL

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13. ABSTRACT (Maximum 200 words)

This report describes several efforts that led to the development of the Instructional Support System (ISS) from prototype research and development (R&D) software toward a production computer-based training (CBT) system that supports both computer-assisted instruction (CAI) and computer-managed instruction (CMI). These efforts included the operational test and evaluation of the software, rehosting of the software to a validated Ada compiler, development of MicroCMI and interactive videodisc capabilities, development of critical user and system documentation, and design and development of a micro-based version of the software to run on IBM-compatible hardware. ISS is a Government-owned product written in Ada in a modular format, enabling it to run on machines ranging from micros to mainframes, and is available through the National Technical Information Service (NTIS).

This is the third of three volumes on the Instructional Support System (ISS). This volume contains an overview for Instructional Personnel to determine if ISS is the correct medium for a specific training application. It provides information on the major training development and management features of ISS. This document is designed for personnel involved in instructional design activities who have a general knowledge of CBT. It emphasizes the various ISS elements used in training development, presentation, management, and evaluation.

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SUMMARY

This overview provides information on the major training development and management features of the Instructional Support System (ISS). The overview is designed for the reader who has a general understanding of computer-based training (CBT) and who may be involved in instructional development activities. It emphasizes how the various elements of ISS are used in the training development, presentation, management and evaluation process.

Chapter I describes ISS and provides a brief history. Chapter II covers the range of instructional techniques supported by ISS. Chapter III provides a detailed description of ISS in the instructional development process. Support features available with ISS are addressed in Chapter IV. A glossary of terms follows the overview.

Accession For	
NTIS GRA&I	☒
DTIC TAB	☒
Unannounced	☐
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

PREFACE

This is the third of three volumes on the Instructional Support System (ISS). Volume I contains a detailed description of ISS development efforts. Volume II contains an overview of ISS for managers, and Volume III is an overview for instructional personnel. These overviews are designed to aid in determining ISS suitability for specific training applications.

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INSTRUCTIONAL SUPPORT SYSTEM (ISS): AN OVERVIEW FOR INSTRUCTIONAL PERSONNEL

I. INTRODUCTION TO ISS

The Instructional Support System (ISS) is a computer-based training (CBT) system available to Government agencies. ISS combines both instructional and management capabilities into one system, facilitating the creation, delivery, management, and evaluation of instruction for students and instructors alike. ISS is Government-owned and is written in Ada, a standard Department of Defense (DoD) programming language. The use of Ada enables ISS to be transported to a variety of machines, ranging from mainframes to microcomputers.

The modular construction of ISS makes it possible to load the entire system simultaneously or in portions, depending on the user's need. In addition to easy user access, the modular components make software maintenance easy to perform.

Creating courseware is also made easier with ISS. Because ISS uses interactive menus and prompts for creating courseware, instructional developers do not need to know a programming language.

A similar set of menu-driven editors allow managers to increase the level of control and efficiency of their training programs. Management capabilities within ISS include creating tests, enrolling students, logging-on students, tracking resources, monitoring students, evaluating course material, and generating student performance data.

Furthermore, ISS will accommodate a light pen, mouse, touch panel, and data (bit) pad input devices. ISS also can interface with videodisc players and optical mark readers.

A Brief History

In the early 1970s, the Air Force Human Resources Laboratory (AFHRL) initiated the Advanced Instructional System (AIS), a research and development program to explore CBT. Although a few commercial systems existed at that time, none of them met Air Force needs. The AIS was designed to train and manage a large number of students and used a mainframe computer; AIS implementation was dependent on the hardware and software available at the time.

In the early 1980s, microprocessor technology emerged, along with alternative CBT configurations. Capitalizing on the new hardware and software developments, ISS became the successor to AIS. The Air Force accepted ISS as a prototype on the VAX 11/780 minicomputer in October 1985. In 1986, the Strategic Air Command at Dyess AFB, Texas, served as the operational test and evaluation site, using ISS to develop B-1B aircrew training.

ISS was rehosted from an early Ada compiler to a validated Ada compiler in December 1986, making it a more stable and maintainable product. Several management enhancements were added and the application software was documented to aid transitioning the software to a long-term support agency. On-line and off-line training courses were developed to assist users in developing and managing courseware.

A micro computer-managed instruction (CMI) capability was developed in July 1987. This version is compact enough to run on microcomputers yet powerful enough to track student progress and preserve data required to evaluate instructional effectiveness. Videodisc and four additional optical mark reader forms were integrated into ISS in January 1988.

ISS has since been rehosted to a Micro Vax II and the CAI system and micro CMI system components have been rehosted to the Zenith 248. The videodisc capability was rehosted to the Zenith in early 1988.

II. INSTRUCTIONAL TECHNIQUES SUPPORTED BY ISS

ISS uses an authoring system instead of an authoring language; therefore, courseware authors and instructors require no programming background. The editors, menus, and prompts allow the author to implement a full range of instructional techniques including tutorials, drill and practice, simulations, gaming, and testing. Each of these instructional techniques is discussed below.

Tutorials

Tutorials present information in a linear fashion, with the student initiating the presentation of frames at a rate with which he or she is comfortable. Frames (screen displays) are like pages of a book. Tutorials are used when the instruction requires a strong knowledge component. Questions and graphics can be introduced within frames or at the end of an instructional segment. An over-reliance on tutorials to the neglect of other instructional strategies runs the risk of having the instruction dubbed "electronic page-turning." ISS provides a wide variety of screen types through utilization of the computer-aided instruction (CAI) Authoring Support System (CASS) Editor. The CASS Editor, in conjunction with the Graphics Editor, is used for creating tutorials.

Drill and Practice

Drill and practice is a simple way of using a computer for instruction. A problem is presented, a student response is accepted, the response is judged, and feedback is provided. The student proceeds to another task or problem based on the correctness of the response.

Normally, drill and practice presents no new instructional material, but provides practice on instruction that has already been presented. Typical examples include computational tasks and forms completion. Generally, drill and practice techniques are appropriate for any kind of learning that involves basic facts, terminology, or repetitive tasks. Drill and practice is supported by ISS through a variety of branching techniques and response-judging available within the CASS and Simulation Dialogue Editor (SID).

Simulations

Simulations model some process, mechanism, or activity. The model allows students to relate input conditions to output results. In training, simulations can replace expensive and impractical equipment use. Simulations prevent unnecessary wear on equipment and reduce the chances of accidents by individuals not familiar with the equipment. Simulations also are well suited to training involving problem-solving or decision-making skills. A good Air Force example is equipment maintenance procedures which require troubleshooting. The SID Editor has the capability to represent process flow, hydraulics, electronic operations, and gauge and meter readouts under either program control or student control. The ability of this editor to produce high-resolution graphics with real-time animation provides an excellent training tool for instructional presentations.

Instructional Gaming

Instructional gaming is sometimes discussed interchangeably with simulation; however, games are not typically directed at specific applications such as troubleshooting a piece of equipment. Instructional games can be used to enhance the performance of a wide number of skills and abilities that are job-related. Whether competing against a preset standard, a computer program, or a live opponent, the element of competition and the aspiration to exceed one's previous performance gives games their vast appeal. Instructional games are useful for increasing motivation, developing general problem-solving strategies, and making the instructional process more engaging. Within ISS, instructional gaming is supported through the use of the CASS, Graphics, and SID Editors and by the system's rapid response-judging and branching capabilities.

Testing

Periodic testing assesses mastery of units of material and transforms passive students into active participants. ISS provides five types of interactive questions: touch, matching, true or false, multiple-choice, and constructed response. The development, scoring, and analysis of tests can be very time-consuming, especially when alternate tests or test items are generated for the same instructional objective. ISS enables easier performance of this activity. The capacity to score test responses and statistically analyze the results is a valuable time-solving feature available with ISS. Authors can write tests in either the CASS Editor or the Test Editor. The CASS Editor is used to create embedded tests; the Test Editor is used to develop mastery tests. Both editors provide the same types of questions and response-judging.

III. ISS CAPABILITIES IN THE INSTRUCTIONAL DEVELOPMENT PROCESS

This section describes how ISS is used to implement a curriculum design on a computer system. Emphasis is placed on the special ISS features which make it one of the more sophisticated CBT systems available today. The process is divided into nine major activities which are necessary to implement, deliver, monitor, and manage a CBT curriculum using ISS. ISS modules are involved in each of the activities. These activities and their modules are as follows:

Establish User Access

ISS provides the capability to control access to any of its software modules, options within modules, and courseware. Access is accomplished through user log-on IDs and passwords, and can be tailored to each individual user. A system administrator establishes access to ISS through the user editor (USERED) module. ISS specifies five categories of user access as follows:

1. DEMO - access typically limited to demonstration programs.

2. Author - access provided to all courseware development modules.

3. Programmer - access provided to all ISS source code, development and management modules.

4. Administrator - access provided to all ISS management modules.

5. System Programmer - access provided to all ISS modules and source code.

Additional access and options are provided to each of the above categories by the system administrator. Once access to ISS is provided, the CBT author can begin curriculum development.

Curriculum Development

Course development begins by carefully planning curriculum structure. Before authoring begins on ISS, curriculum content must be reduced to the lesson level. Lesson modules represent the basic unit of ISS instruction. Once the expected content of each lesson is determined, the medium of presentation is selected. ISS supports both on-line and off-line presentation of lesson material. Alternate forms of lesson material are called "modules." Lessons are combined to form either courses or course blocks. Finally, courses are grouped to form curricula or curricula blocks.

Lesson Module Development

Lesson module development in ISS begins with the creation of screen presentations called "frames." In ISS, this is accomplished through the CASS Editor. After logging into ISS, the author selects the CASS Editor, then identifies the course, block, version and lesson module. The CASS Editor then takes the author through a series of prompts leading to the display of a Frame List. The Frame List enables a selection of various frame types used to develop courseware. Three categories of frame types are provided: text, question, and extended access frames. (See Appendix A for a description of the frame types.) A frame type is selected and a series of prompts and menus again guide the author. As each frame is completed, the frame list is displayed and the author repeats the process. The author can insert, change, copy, delete, skip, or reorder the completed frames. The author can view any sequence of frames as the student would see them.

Five additional capabilities support lesson module development: videodisc, graphics, simulation, branching, and glossary.

1. *Videodisc.* Videodisc displays can be authored in CASS using adjunct material frames. Individual video frames or sequences of frames can be combined with text or graphics to provide a powerful instructional medium.

2. *Graphics.* Graphics may be incorporated into either text or question frames. Graphics are developed using a graphics editor (GrEdt). This editor develops high-resolution, color graphic presentations. Objects and text generated in GrEdt can be rotated, scaled, and colored. Extensive editing commands allow changes to be made to graphics during the development process. Graphic symbol libraries can also be developed using GrEdt, enabling commonly used graphics to be accessed repeatedly.

3. *Simulation.* Simulations may also be incorporated into text or question frames. A simulation uses text, graphics, and animation to represent an operation or a process. A simulation is made of a series of author-defined events. An event consists of objects and actions. Objects are developed within SID, and controlled through the use of action frames. The action frames control the presentation, location, and sequencing of the objects. Three types of objects are available: text, graphic, and computation:

    •   A text object consists of a block of text or symbols positioned at a specified location on the screen to support a graphic or ask the student a question.

● Graphic objects are drawings, charts, or illustrations created in the GrEdt and called from SID. Once called, SID allows the graphic object to be moved, scaled or changed in color. A graphic object cannot be structurally changed except in the GrEdt.

● Computational objects either display values or determine the presentation sequence of a simulation. Computational objects receive their values through randomly generated numbers, arithmetic, algebraic expressions, or student interaction.

4. *Branching*. ISS provides extensive branching capabilities. Through branching, the student can be directed to a particular frame, frame group, a new module, a new lesson, or a new course. Three types of branching logic are available:

● Pre-frame logic, in which the branching logic is evaluated before the frame is presented to the student;

● After-frame logic, in which the branching logic is evaluated after the frame is presented to the student; and

● Response logic, in which the branching logic is evaluated after the student responds to a question.

5. *Glossary*. As an aid to the author and to the student, a central glossary can be created. The glossary provides definitions of terms for one or multiple courses. Within the glossary, options are available to add, change, copy, delete, list, and display.

Establish Curriculum Structure

After the lesson material is developed, it must be organized into the curriculum structure. ISS curriculum material is organized according to the following instructional unit hierarchy:

1. *Curriculum*. Curriculum is the highest level instructional unit that can be administered by the ISS. Several related courses can be grouped to form a curriculum (e.g., aircrew training). A curriculum is divided into courses or curriculum groups.

2. *Courses*. Courses represent subject areas of study. Versions of courses denoting the same instructional material on different media may also exist within a curriculum or course group. Courses can be divided into lessons or groups.

3. *Lesson Module*. A lesson module is a unit of instructional material within a lesson typically identified with an instructional objective and ending with a comprehensive test. To aid the management of courseware development, lesson modules are further subdivided into segments, frames, and pages.

4. *Segment*. A segment is a unit of instruction within a lesson module typically identified with an enabling objective. A lesson module may have up to 25 segments.

5. *Frame*. A frame is the smallest unit of instructional information used to explain a single concept or ask a question. ISS provides 17 frame types for use by courseware authors. See Appendix A for a description of each of these frame types.

6. *Page*. A page is the smallest unit of instructional presentation which represents one screen of information. Pages combine to form frames, with up to four pages per frame.

The ISS management structure requires that a curriculum, including its courses and lesson modules, be precisely defined. ISS provides three editors for courseware authors to use in defining and structuring course material. The editors are the Lesson Definition Editor (LDE), the Course Structure Editor (CSE), and the Curriculum Definition Editor (CDE). Their functions are as follows:

Lesson Definition Editor (LDE). The LDE defines lesson modules that specify the characteristics of a lesson and include the number of supporting modules, identification of mastery tests, and rules for module selection when alternate module tracks are provided. The module definition component specifies the characteristics of each alternate lesson module and includes the instructional resources required, whether the module is on-line (CAI) or off-line (alternate media), and whether a remediation module is provided. ISS requires that lessons be defined in CSE prior to being specified in LDE. Both the Test Editor and the CSE may be accessed from LDE.

Course Structure Editor (CSE). CSE completely defines and describes an instructional course. The course definition includes:

- Course documentation (i.e., course title, course identification (ID), date last revised, date last implemented, author, maximum and average number of students registered, and actual number of students registered) and the course hierarchy, which divides the course into course versions, blocks, groups, and lessons.

- Course resource management includes management of resources, learning centers or classroom hours (shifts). Resources are categorized into portable, facility, consumable, and instructor-managed.

- Course scheduling includes scheduling of students through course lessons and scheduling of resources to support the student load.

- Course validation/implementation ensures that course structure is correct and complete before students are enrolled. The validation process checks the course and displays error messages if inconsistencies exist or course structure is incomplete. Validation includes checking for incomplete or conflicting data associated with course branching, tests, on-line versus off-line presentation, and resource allocations. If the course exhibits no problems during the validation process, the course can be implemented.

Curriculum Definition Editor (CDE). The CDE defines a curriculum or curriculum group, including the curriculum or curriculum group title; an ID number; the date implemented; the date last revised; the list of courses included in the curriculum or curriculum group; and the hierarchical relationships among courses and curriculum groups. The curriculum or curriculum group must be validated/implemented before a student may be enrolled in the curriculum. Validation of a curriculum is accomplished at the curriculum level in the same manner as a course. The system ensures that branching between courses is correct and that references to each course or curriculum are correct and consistent. If the curriculum exhibits no problems during the validation process, the curriculum can be implemented.

Establish Mastery Testing

Mastery tests can be developed for lessons, lesson groups, courses, and course groups. The Test Editor is used to create, define, and edit all mastery tests. The editor is primarily designed for the development of criterion-referenced tests, but may also be used to develop

norm-referenced tests. Tests may be developed for both on-line and off-line presentation. Tests may include additional versions or alternate tests.

Manage Resources

ISS provides the capability to manage student, facility, and instructor-managed resources. This is accomplished through two editors: the Resource Availability Editor and the Instructor-Managed Resources Editor.

Resource Availability Editor. The Resource Availability Editor divides resources into three categories: portable, facility, and consumable resources. The user can view the types of resources in each category, the level at which they are managed, the number in inventory, the number currently available, and a description of each type. The user can also increment, decrement, or change the number available of any of the resource types.

Instructor-Managed Resources Editor. The Instructor-Managed Resources Editor is designed to manage resources that have been defined in the CSE as controlled by the instructor. This editor allows the instructor to reserve resources for assignment to specific students on specific dates and times, and to update resource reservations on a daily or weekly basis.

Manage Students

With the course material now completed and the student and course resources established, the student can be enrolled in the training system by using the following editors:

Student Registration Editor. An instructor enrolls a student in the system through the Student Registration Editor. The instructor establishes the student sign-on and registers the student into a curriculum and courses within that curriculum. The editor allows the instructor to update student records, examine registration data, view lists of active and completed courses for individual students, and view lists of all courses in specified curricula.

Student Log-on Editor. Once students are enrolled, they can begin course study by entering their identification in the Student Log-on Editor, which accesses the lessons for the specified curriculum and allows the student to choose an assignment from a number of alternatives. When students have established a record within the system, they can choose alternative assignments, continue a previous assignment, view their completion status of lessons within the course or course block, or view a detailed performance record for each completed lesson within a selected block.

Present Course Material and Assess Student Performance

Once the student has selected course material to learn, the ISS employs three programs to control the presentation of course material on the screen: the CAI Presentation Program, the Simulation Presentation Program, and the Test Presentation Program. The CAI Presentation Program is called when the student selects the lesson assignment. The Simulation Presentation Program is called from the courseware when a simulation is to be introduced. The Test Presentation Program is called when the student takes a mastery test for the current assignment.

Student progress may be monitored at any time. The Student Monitor allows instructors to observe student progress as they take on-line lessons and tests. After the instructor selects the student to be monitored, whatever appears on the student's terminal also appears on the

instructor's terminal. To access student records, instructors use the ISS Administration Management Editor. This editor provides current and past performance on assignments, course progress, and graduation dates of students. Actions which can be performed within this editor include marking students absent, changing student assignments, moving students ahead to new lessons, withdrawing students from a curriculum, passing students, and updating student data.

Generate Reports

ISS provides an extensive report capability. Reports are generated to assess student performance across selected student groups and across selected curriculum materials. The report generators are as follows:

CAI Report Program. This program collects and presents data on the following criteria: decision paths, response analysis, and student comments.

- Decision path tracking presents a summary of overall student performance by segment or partial segment. The data reported include the number of students in the sample, mean elapsed time in a segment or frame group, mean number of questions answered correctly in a segment or frame group, and percentage of questions answered correctly in a segment or frame group.

- Response analysis tracking provides detailed student performance data for each text and question frame and includes the number of students in the sample, number of attempts allowed, correct responses, and mean elapsed time.

- Student comments tracking collects comments entered by the student on specific frames and stores this information in a file accessible by the instructor.

ISS also provides report programs which collect and print out student performance data across course material from the course to the lesson module level. These report programs include the Course Evaluation Summary, the Data Extraction Program, and the Test Item Evaluation.

Course Evaluation Summary. The Course Evaluation Summary provides student performance statistics at the lesson, module, block, and course levels. Statistics can be selected from specific student groups, individual lessons or blocks, or any combination of these. Data provided by the report are selectable and include: number of students in the sample population, mean time and standard deviation spent in the block, block test score mean and standard deviation, total number of failures, percentage of cognitive failures, percentage of performance failures, cognitive score mean and standard deviation, mean time and standard deviation to complete lesson, and total mean time and standard deviation to mastery for all attempts.

Data Extraction Program. The Data Extraction Program selects cases for analysis, including the variables to be analyzed. Over 100 variables across four categories are available for analysis. The four categories are across-blocks data, block-specified data, pre-assessment and biographical data, and across-lessons data.

Test Item Evaluation. The Test Item Evaluation provides comprehensive test item analysis for both on-line and off-line tests. Results of the analysis include number of samples, total number of failures and failures by selective criteria, passing criteria, number of failures within the sample population, score mean and standard deviation, critical objective indication, number of questions, and number of correct answers needed to pass. Test item statistics include

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question objective, mean score and standard deviation, number of students who failed, and critical objective indication.

IV. ISS SUPPORT FEATURES

Newcomers to ISS do not have to fend for themselves when they have questions and need to learn more about the system. User and system documentation and on-line and off-line training materials are available to assist the user in becoming proficient with ISS in the shortest possible time.

Reference Manuals

Reference manuals are available for each ISS editor module. Each manual contains a brief overview of the capabilities and functions. ISS terminal hardware specifications include charts to help users determine available hardware features based on their own unique needs. A function chart provides specifications on each terminal's capabilities, and a keystroke detail chart specifies the keys or control commands used on each terminal. The manuals define ISS terms and specific modules; detailed procedures for using each module also are given. In addition, error messages are provided, with a brief explanation of their meanings and a list of corrective actions. The last chapter of the manuals provides solutions to problems not addressed by error messages.

For individuals who are interested, system documentation for the software is also available, including a product specification, functional description, interface document, within-code application software documentation, and data structure and data base documentation for the entire system.

A report which describes the development of ISS, entitled *Instructional Support Software System* (AFHRL-TR-85-53), can also be obtained.[1]

Training

Stand-alone training materials on the ISS CAI component are available to the first-time user and consist of both on-line and off-line instruction. The materials include descriptions of CAI editor functions and capabilities, as well as practice exercises for each editor. Training materials for the CMI components are also available.

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[1] AFHRL-TR-85-53, AD-A166 776, is available to Govenment offices and registered contractors from the Defense Technical Information Center (DTIC), Cameron Station, Alexandria, Virginia 22314; or for sale to the general public from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22166.

GLOSSARY

The following terms are used in this overview and in other ISS documentation.

Term	Definition
Ada	The standard Department of Defense programming language developed to standardize DOD software development.
Block	A unit of instruction within a course, comprised of lessons and modules, covering a specific subject.
Branch	An instructional feature that transfers students from one lesson path to another.
Computer-Assisted Instruction (CAI)	Interactive instruction presented to the student on a computer. (See courseware.)
Computer-Based Training (CBT)	Instruction that is developed, delivered, and managed on computers.
Consumable Resources	Expendable resources used by students (e.g., paper).
Courseware	Interactive instruction presented to the student on a computer. (See computer-assisted instruction.)
Curriculum	Largest organizational unit within the ISS program of study. Made up of courses, course versions, course blocks, and lessons.
Database	Collection of data in a form capable of being processed by a computer.
Display	The visual contents on the video screen (i.e., text, graphics, order sequences, etc.).
Error Messages	Instructions that appear on the screen telling users they have made a mistake. Instructions on how to correct the error are provided.
Facility Resources	Refers to an immobile instructional environment, including learning centers, classrooms, and simulators.
Frame	A screen display which presents information or asks questions. Each frame normally contains only one chunk of information.
Lesson	Basic unit of instruction in the ISS system.
Mastery Test	Tests designed in the ISS Test Editor to evaluate a student's mastery of course material.

GLOSSARY (Concluded)

Term	Definition
Menu	A list of options presented on a screen display that provide users a choice of retrieving information or performing different functions.
Off-line Instruction	Instructional material delivered independent of a computer system (e.g., paper-based materials).
On-line Instruction	Instructional material delivered on a computer system.
Portable Resources	Training materials that a student can carry from one location to another (e.g., books, handouts, video or audio cassettes).
Prompt	A brief display message which tells the user what to do.
Response Time	The time it takes for the microprocessor to respond to an input device. From a user standpoint, the time between inputting a command to the computer and initial screen display.

APPENDIX A. ISS DEVELOPMENT FRAME TYPES

INTRODUCTION TO ISS FRAME TYPES

The ISS system provides menu-driven development of various screen presentation types called frames. Three basic types of frames are provided: text frames, extended access frames, and question frames. The following list describes these frame types and their basic functions.

TEXT FRAMES	Frames used to present text and graphic information to the student.
Documentation Frame	Documents lesson development status. The frame usually contains information such as the author's name, date lesson created, lesson title, lesson objectives, and contents of each segment of the lesson.
Elaboration Frame	Provides added instruction to a student who needs further assistance. The author determines when the student sees this frame.
Help Frame	Provides added instruction to a student who needs help. Developed by the author, this frame may be called up by the student when help is needed. Each of these frames, when developed, is tied to a specific block of instruction.
Information Frame	Provides instruction in the form of text and graphics.
Learning Resources Frame	Lists all resources which a student needs to complete a module.
Overview Frame	Presents introductory material for a lesson.
Statement of Objectives Frame	Describes the information a student should know after completing a module.
Title Frame	Provides the title of the lesson or a subset of lesson material.
EXTENDED ACCESS FRAMES	Frames used to signal the system to display instructional segments that cannot be accessed in CAI Presentation Frames. They can also reserve the location in the presentation program to which it will return.
Adjunct Material Frame	Enables input of interactive video commands. These commands include displaying a frame or sequence of frames, erasing the video image(s), overlaying text and/or graphics onto video frames, etc.

Branch Frame	Serves as a collection point for different branches through the instructional material. Because a branch frame contains only branching logic and no text or graphics, it is never seen by students. Used to direct a student to a specific instructional group based on an author-defined condition.
Menu Frame	Provides student-controlled branching through the use of menu options.
Program Frame	Accesses computer programs external to the ISS.
QUESTION FRAMES	Frames used for tests and quizzes. The five types of question frames are: constructed response, matching, multiple-choice, touch, and true/false.
Constructed Response	Asks the student to supply a short answer.
Matching	Requires a student to match the items in one column with those in a second column.
Multiple-Choice	Consists of a question stem and a series of up to five possible answers from which the student selects an answer.
Touch	Consists of a question stem and defined touch areas on a screen. Students answer the question by touching a location on the screen using either their finger or a light pen, or by positioning crosshairs.
True/False	A question or a statement that the student must decide if true or false.